Risk factor for footpad dermatitis and hock burns in broiler chickens

Tullo, E.[a], Fontana, I.[a] , Peña Fernandez, A.[b], Berckmans, D.[b], Koenders, E.[c], Vranken, E.[c], Brown, S.N.[d], Butterworth, A.[d], Gunnink, H.[e], Guarino, M.[a]

[a] Department of Veterinary and Technological Sciences for Food Safety, Faculty of Veterinary Medicine, Università Degli Studi, Via Celoria 10, Milan, Italy

[b] Department of Biosystems, Division M3-BIORES: Measure, Model and Manage Biore-sponses, KU Leuven, Kasteelpark Arenberg 30, Heverlee, Belgium

[c] Fancom BV, Wilhelminastraat 17, XW Panningen, Netherlands

[d] University of Bristol, Clinical Veterinary Science, Langford, NS, United States

[e] Wageningen UR, Livestock Research, P.O. Box 65, AB Lelystad, Netherlands

Abstract

Footpad dermatitis (FPD) and hock burn (HB) are a major welfare concern in broiler chicken farming. In general, foot lesions are linked to poor environmental conditions. Ulcers caused by advanced lesions can negatively affect the gait of the birds, with effects on the welfare of animals, including, in the worst cases, inability to reach the feed or water. FPD and HB score data were collected manually at two broiler farms across Europe, during welfare assessments performed within the EU-PLF (Precision Livestock Farming) project, which is supported by the European Commission. This ongoing project aims to create "added value" for the farmer through the application of sensors and information technology at farm level. On those broiler farms, a number of variables such as temperature, relative humidity, ventilation rate, bird weight, light schedule, and feed and water consumption rates are measured automatically. The welfare of the chickens was assessed three times per cycle (at week 3, 4 and 5), scoring FPD, HB, gait score, cleanliness of the birds and litter quality. Data analysis was performed by combining data from the welfare assessments with environmental data collected by the automatic monitoring systems. The analysis showed that FPD and HB were more frequent when the flock was exposed to poor environmental conditions for prolonged periods of time. As environmental conditions can be measured continuously, and the risk factor for FPD and HB increases with poor environmental conditions, there is potential to develop a detection and control system for foot and hock lesions.